ARIZONA DEPARTMENT OF TRANSPORTATION

HIGHWAYS DIVISION
206 South Seventeenth Avenue - Phoenix, Arizona 85007-3213

FIFE SYMINGTON
Governor

LARRY S. BONINE
Director

GARY K. ROBINSON
State Engineer

ARIZONA DEPARTMENT OF TRANSPORTATION

February 23, 1994

Engineering Consultants Section

INFORMATION BULLETIN 95-04 REVISED

TO: CONSULTANTS

FROM: ENGINEERING CONSULTANTS SECTION

SUBJECT: POLICY ON SHOULDER GROOVING FOR RUMBLE STRIPS

Enclosed is ADOT's policy on shoulder grooving for rumble strips effective February 15, 1995. The primary change is that grooving will now be placed on 6 foot minimum shoulder widths on undivided highways. The previous shoulder width was 5 feet.

Please contact Terry Otterness, Design Program Manager at (602) 255-7341 if there are any questions.

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ARIZONA DEPARTMENT OF TRANSPORTATION

OFFICE MEMO

February 15, 1995

TO: JOHN LOUIS, Roadway Engineering Group, 611E
CHUCK EATON, Traffic Engineering Group, 061R
REGIONAL TRAFFIC ENGINEERS
GEORGE CHIN, PM04
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ROBERT LaJEUNESSE, P820
DISTRICT ENGINEERS
JIM DEMAREE, Materials Group, 068R
DALLIS SAXTON, Transportation Support Group, 215P
LARRY LANGER, Statewide Project Management Section, 614E
MARK DANELOWITZ, Local Government Section, 630E
PETE ENO, Engineering Consultants Section, 616E
DAVE ALLOCCO, Contracts and Specifications Section, 121F
RON WILLIAMS, Construction Group, 172A
KEN DAVIS, FHWA, 005R

FROM: TERRY H. OTTERNESS THO
Design Program Manager
Roadway Engineering Group, 615E

SUBJECT: **A POLICY ON SHOULDER GROOVING FOR RUMBLE STRIPS**

A copy of the subject policy is enclosed for your use. The policy is effective February 15, 1995. The primary change effected by the Policy is that grooving will be placed on 6 ft. minimum shoulder widths on undivided highways; previous shoulder width was 5 ft.

Please distribute within your Group or District and evaluate the impact upon ongoing predesign, design or construction. Modifications to implement the revised Standard C-09.10 will be fully supported. The revised standard drawing (3/95) will be distributed through Engineering Records as soon as the reproduction process is complete.

Please contact me at 255-7341 if there are any questions regarding the Policy.

THO:tbw
No. Pol2-151

c: J.J. Liu, ATRC, 075

A POLICY ON

SHOULDER GROOVING FOR

RUMBLE STRIPS

FEBRUARY 15, 1995

ARIZONA DEPARTMENT OF TRANSPORTATION

HIGHWAYS DIVISION

ROADWAY ENGINEERING GROUP

ROADWAY DESIGN SECTION

INTRODUCTION

The purpose of this policy is to define conditions where shoulder grooving will be placed on the state highway system roadways.

Shoulder grooving is an indented pattern placed in the new asphaltic concrete pavement surface of roadway shoulders to enhance safety. Shoulder grooving is intended to alert drivers by creating an early audible and tactile "rumble strip" warning that their vehicle is leaving the traveled way and that a steering correction is required.

The enclosed Construction Standard Drawing C-09.10 provides a detailed description of the pattern, placement, and method of construction.

This policy was developed jointly by the Roadway Engineering Group and Traffic Engineering Group, has been endorsed by the Regional Traffic Engineers representing the Engineering Districts and has received Federal Highway Administration review and approval.

POLICY

Shoulder grooving will be applied to new construction projects when the thickness of new asphaltic concrete shoulder will allow placement in accordance with Standard Drawing C-09.10, Grooving for Bituminous Shoulders. Shoulder grooving will be applied as follows:

Rural Areas

Shoulder grooving will be applied on undivided highway shoulders 6' wide and greater. On divided highways, grooving will be applied on right (outside) shoulders 6' wide and greater and left (median) shoulders 4' wide and greater.

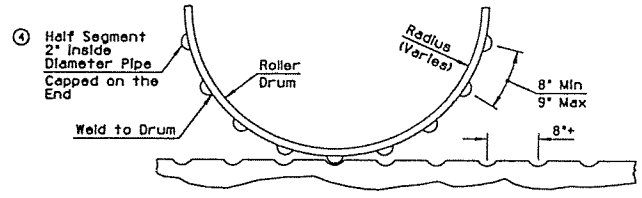
Urban Areas

Shoulder grooving will not be applied on the shoulders of roadways within urban boundaries.

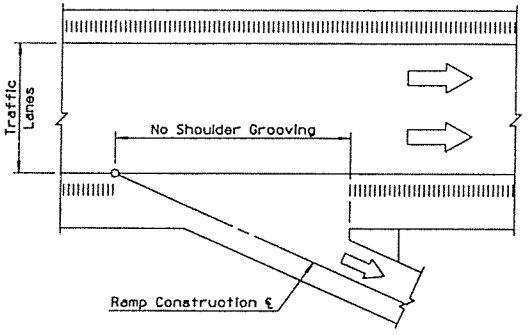
Suburban Areas

Shoulder grooving may be applied in suburban areas in accordance with the widths given for Rural Areas. The designer, coordinating with the District representative, will determine the limits of shoulder grooving weighing considerations such as number and spacing of residential and commercial driveways, posted speed limits/operating speeds, existing land use, future development, bicycle traffic, signalization, and accident history. When these considerations are more indicative of urban than rural conditions, shoulder grooving may not be appropriate.

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	REVISED DETAIL	PMS	3/95
2	ADDED DETAIL	PMS	3/95
3	REVISED NOTE	PMS	3/95
4	REVISED PIPE TO 2" INSIDE DIAMETER	PMS	3/95



STEEL DRUM DETAIL



① RAMP EXCEPTION DETAIL
ENTRANCE RAMP SIMILAR

GENERAL NOTES

③ 1. Shoulder Grooving shall be applied to the shoulders of rural highways when called for on the Plans in accordance with the following shoulder widths:
Undivided Highways - Shoulder 6' and greater
Divided Highways - Right shoulders 6' and greater
Left shoulders 4' and greater

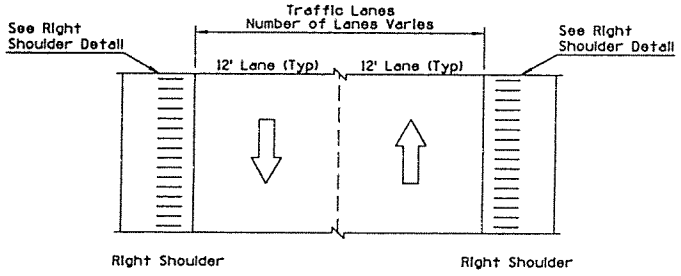
2. Shoulder Grooving shall be omitted across principal intersecting roadways or other interruptions in normal shoulder width as directed by the Engineer.

④ 3. Shoulder Grooving shall be constructed by making indentations in the asphaltic concrete.

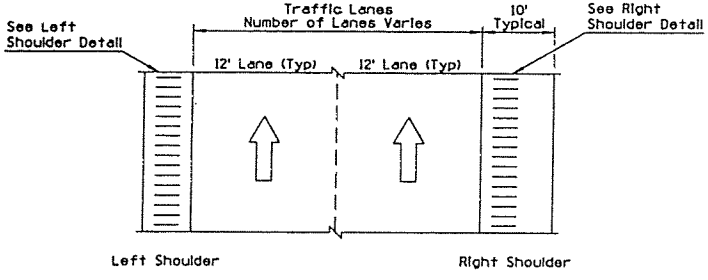
The indentations may be formed by rolling the hot asphalt concrete with a roller to which half segments of 2" inside diameter pipe have been welded to the drum. The pipe segments shall be 2' long and spaced at approximate 8" centers.

4. Each roller shall be equipped with an acceptable guide that extends in front of the roller and is clearly visible to the operator in order that proper alignment of the completed scored shoulder is obtained.

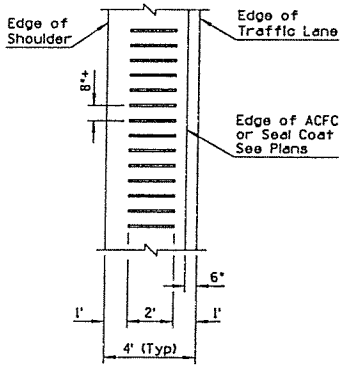
5. The contractor may utilize other equipment or methods to construct the shoulder grooving if approved by the Engineer.



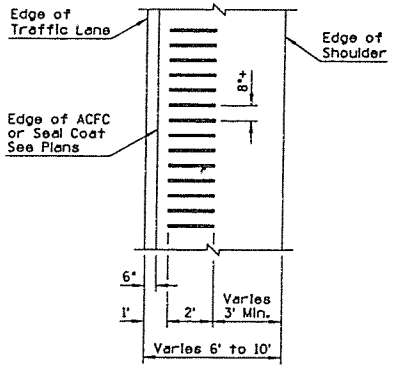
② TYPICAL SHOULDER GROOVING PLAN FOR UNDIVIDED HIGHWAYS



② TYPICAL SHOULDER GROOVING PLAN FOR DIVIDED HIGHWAYS



② LEFT SHOULDER GROOVING DETAIL FOR DIVIDED HIGHWAYS
TYPICALLY 4' WIDE



① RIGHT SHOULDER GROOVING DETAIL
SHOULDERS 6' AND WIDER

DESIGN APPROVED	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS STANDARD DRAWINGS	REV. 3/95
APPROVED FOR DISTRIBUTION	GROOVING FOR BITUMINOUS SHOULDERS	DRAWING NO. C-09.10